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The AMERICAN HOROLOGIST

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THE AMERICAN HOROLOGIST

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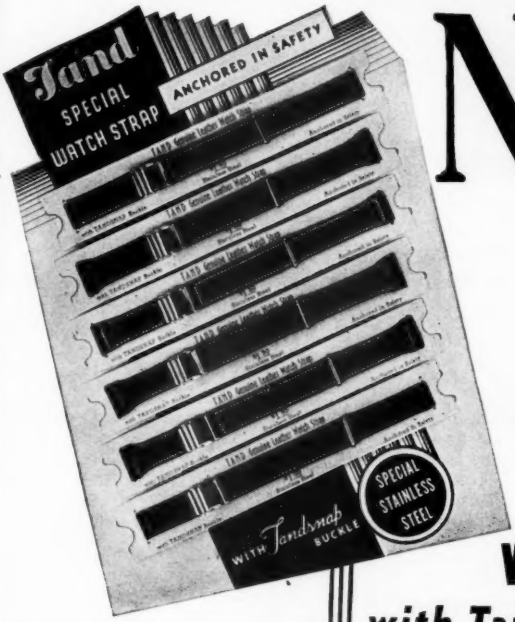

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Stretching or Swageing

THERE are many operations in watch work which come under this head, for example: lengthening the horns of a fork, or lengthening the entire fork.

Watchmakers should study the theory of escapements; be able to design an escapement, correct in all its actions—not a mere copy of some other drawing. The workman with this degree of knowledge, after examining an escapement, knows with certainty what changes are required to put it in good order, or the best order practicable; for some escapements are so poorly designed as to make it impossible to make them really good without rebuilding.

Suppose we have a Swiss watch, in which we find the notch of the fork much too wide for the jewel pin, and the pin already filling the hole in the roller, and as wide as it should be for favorable action. The obvious procedure is to close the notch in the fork, which may be done with perfect safety, if we proceed in the right way.

The type of fork in which the fault mentioned will most frequently be found,

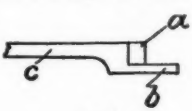

Fig. 1

is the kind without a guard pin; the guard function being performed by an abutment on the lever, Fig. 1; the horns, *b*, of the fork being below the plane of the fork body, *c*.

We should first draw the temper of the fork by grasping it with a heavy pair of tweezers near the fork end, to prevent drawing the temper any further back than necessary, the horns being covered by a folded strip of copper or brass, thin and small; it is well before heating the fork to smear it with castile soap to prevent oxidation as far as possible, or convenient. The heating may be conveniently done in the flame of a small lamp; it should be in a darkened place—*i.e.*, not in full daylight—and the fork heated to a dull red—a red just visible—and allowed to cool slowly. It should now be very soft; but before attempting to close the notch, we should test it for hardness, by means of a knife, graver, or file.

Having ascertained that it is really soft, we place it on the crotch stump to one side of the notch, and with the swageing or penning punch brought down

Fig. 2

on top of the horn, as shown in Fig. 2, a light tap on the punch bends the horn in slightly; the fork is then reversed and the operation repeated on the other horn. This, of course, makes the notch narrowest at the mouth, so the closing must be enough greater than required to fit the pin. that it may be ground out parallel.

If the horns were at first just the right length, they will now be too long, but with the right appliances—which are very simple—and the necessary knowledge—which is easily acquired—they can be quickly corrected.

About the most convenient thing for grinding out the notch is a thin edged,

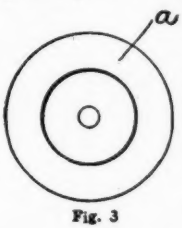

Fig. 3

soft steel or copper lap, charged on its flat face with diamond powder. Such a lap is shown in Fig. 3; it is 1¼ inches in diameter, and ⅛ inch thick; *a* is the charged face. Such laps are preferably mounted on tapers; a sectional view is shown in Fig. 4, which shows that the central portion of the face is turned out below the level of the remainder; this is because only a comparatively narrow ring near the outer

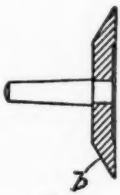

Fig. 4

edge is used, and such shape results in a saving of diamond powder in charging. The dimensions given are not imperative; they are taken from a lap which we have used for years with satisfactory results.

In making such a lap, it is better to do the first thorough charging, before turning the chamfer, *b*, at the back; this makes the lap more rigid and better able to withstand the pressure of charging.

The most convenient, quickest, and most economical method of charging such laps, is by means of a small hardened steel roller, with rounded face, shown in plan in Fig. 5. The pin, *a*, upon which the roller turns should be hardened and tempered light straw; the roller turns on the pin, the pin being fast in the frame. It may be held fast by being a close fit in the frame, or by a set screw.

Fig. 5

The holder is fitted to a substantial handle, and in use is held in contact with the lap at about midway its height, the frame of the roller being held on top of the T rest, and the handle carried slowly through an arc of a circle, as shown by arrows, bringing every part of the roller's curved face successively in contact with the lap; the conditions are shown in Fig. 6.

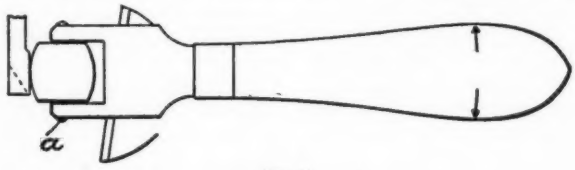

Fig. 6

In making these laps, the face, before charging, should be turned as true and smooth as practicable, and then ground smooth and flat on a ground glass lap, with oilstone powder mixed with oil. Such a lap is the finest thing imaginable for grinding small drills, shortening roller pins, pallet stones, etc. When we say shortening pallet stones, of course we mean grinding off the unfinished end; although with proper appliances for holding the pallet stones, and polishing laps for finishing, these same soft steel or copper laps are used to grind the angles on pallet stones, etc. To treat the subject here, however, would lead us too far away from the subject of our discourse.

Before attempting to grind out the notch of the fork, the horns must first be rehardened and tempered. We should have said, that before softening the fork in the first place, the pallets should be removed, if they are separable from the fork, which they generally are. To harden we hold the fork in the same way we did in annealing it; have the fork well smeared with castile soap, and having the alcohol lamp in a darkened place well protected from drafts — for such work cannot be safely done in a flickering and flaring flame—we heat the horns upto a dark cherry red—not yellow or orange—and cool it in water, not too cold; water at the temperature of the ordinary living room, or about 70° is best. The water must be held very close to the flame; a small test tube, or bottle similar in form, is convenient to contain the water.

It is admitted that in softening and re-hardening a part only of a fork, that there is left a small part which is soft; but this is of no practical importance; the soft place comes in a part of the fork where no wear occurs, and where it is large enough to withstand all legitimate service without bending.

We now remove any slight discoloration, from the heated part of the fork, by means of fine diamond powder, applied on a flattened piece of pegwood; a tiny piece, the size of a pin point being sufficient. If we have no diamond

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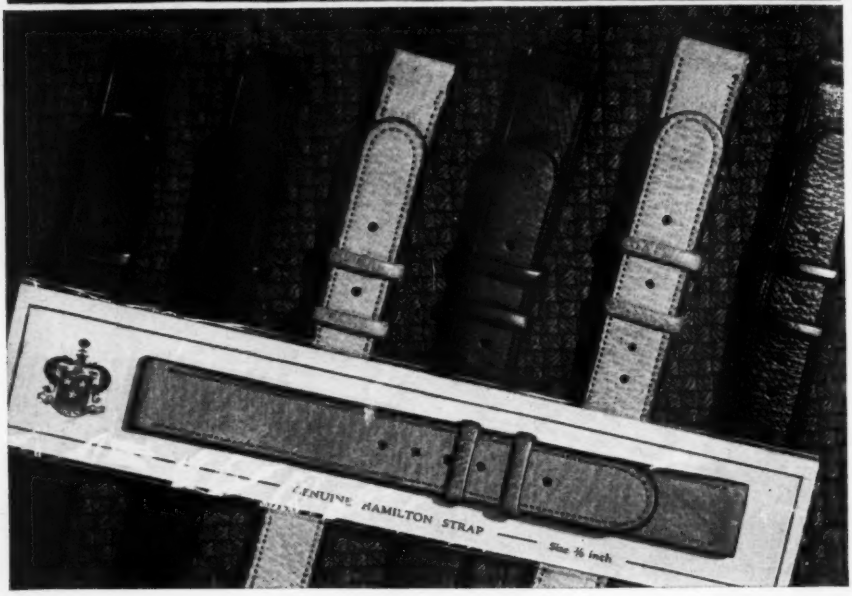

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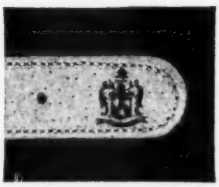

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powder, we scour the discoloration off with fine oilstone powder mixed with oil; restoring the polish, after the notch and horns are reshaped, and refinished, in a manner which we shall describe in our article on polishing. It will be understod that the original finish of the lever is not injured except for a small distance at the fork end.

To come back to grinding out the notch of the fork we have closed. The fork may be held by the pallet staff, by means of a K. & D. second hand holder No. 39, or what is still better, a special boxwood clamp shown in Fig. 7. By means of this clamp we may grasp the fork flatwise at any part of it without marring the polish; although it is always well enough to put a piece of tissue paper around the fork, before closing the jaws upon it.

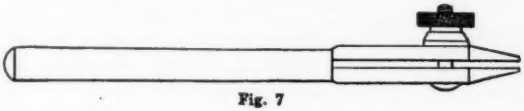

Fig. 7

Keep the face of the diamond lap wet when in use; hold the fork slightly *below* the center of the lap, rather than above; in other words, a line drawn through the fork body, if continued, should pass below the center of the lap. This makes the grinding action disengaging instead of engaging, and the fork will not be forced into the edge of the lap to the possible injury of both. The conditions are shown in Fig. 8. No rest is needed to support the clamp, other than that afforded by the hands as they rest upon the bench, or upon a block or small box, if the lathe is very high.

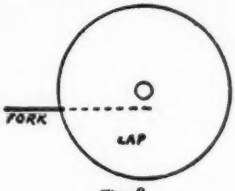

Fig. 8

In grinding out the notch, care should be taken to avoid overdoing it, for diamond laps are quick cutters. The sides of the notch should be slightly rounded as shown in Fig. 9, at *a, a'*; this is an end view looking directly into the notch; this form allows a slight lack of uprightness in the roller pin or other parts, without binding. The polishing is done with a similar lap made of boxwood, upon which diamantine, sapphirine, or other polishing powder is used, mixed with oil. Still better is very fine diamond powder; and a better material than boxwood for the lap, is tortoise shell.

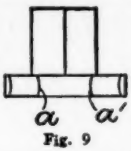

Fig. 9

In another article we shall give directions for grading diamond powder, for the benefit of those unfamiliar with it. This material is so very useful to the watchmaker, so rapid in its action, that every workman who aims to be skilful in his art should be familiar with its use, and equipped to do the simpler operations, at least. Opinions differ as to the shake that should be allowed between the roller pin and the notch of fork. We believe the factories allow about .03 mm. or slightly more than .001 of an inch. Some watches in which the pivots fit the jewels poorly, more shake would be required.

We next grind the horns to correct length. We frequently find in this class of escapements, the horns very wide, and ground curved inside; this is quite unnecessary; in single roller escapements, even when poorly designed, the horn is responsible for the safety action only through a very small angle, compared with the double roller. We may, therefore, grind the horns straight, the faces being about tangent to the path of the roller pin's face; or to be more exact, the faces of the horns should be about parallel to a line tangent to the path of the roller pin's face; for, of course, the horn must safely clear the face of the roller pin when the fork stands against

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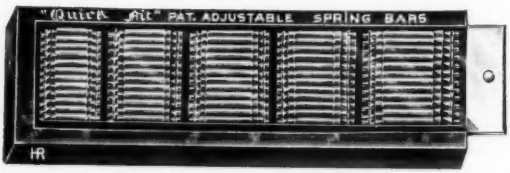

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the bank. These faces should also be polished, in the same manner as the sides of the notch.

A VARIATION ON THE FOREGOING

A fault frequently found in even the finest watches, is a *worn* fork; it is sometimes aggravated by incorrect form, or slight roughness of the roller pin. In many fine watches the triangular pin is used, and in the effort of the maker to economize power, the edge of the pin is made much too thin, affording insufficient surface of contact, consequently, abrasion soon takes place. But even with pins correctly formed, wear sometimes occurs. Oil is unquestionably a disturbing element, and many fine workmen do not apply it to the pin or the notch.

Wear takes place; let us consider how best to repair the injury. If the wear is but slight, it may be polished out without seriously impairing the escapement action. To accomplish this easily and in the best manner, a thin-edge tortoise-shell lap, charged with finest diamond powder is excellent. No fear need be entertained that the fork may become charged with diamond; there is positively no danger if the fork is of tempered steel; a diamond lap would not be suitable for *soft* metal forks.

To hold a fork to polish out the notch, a second hand holder, with the jaws filed away, as shown in Fig. 10, is very convenient; we may grasp the pallet or pallet staff with sufficient firmness; possibly needing to hold a finger against the edge of the fork, while the lap is doing its work; but this is an advantage rather than otherwise, for it prevents vibration of the fork. Care should be taken to hold the fork slightly below the center of the lap, if the lap turns toward you, and *vice versa*. As worn spots in the notch are usually much less deep than they appear, care should be taken to remove no more metal than is necessary. Of course the guard finger must be removed.

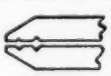

Fig. 10

After finishing the notch, a careful operator may, by laying the fork bottom up on a polish hard steel stake, peen with a small hammer along the edge of the fork just back of the notch, thus closing the horns, to bring the shape of the pin in the notch to the right amount. The greatest care should be exercised not to overdo the peening, as the effect of a light blow at the right point is very marked. All this may be accomplished in a very few mintes, with positively no material injury to the fork.

Closing of the fork by cold peening is recommended only within narrow limits, .05 mm. at most. If more is necessary, we should anneal the fork, close it while soft, then re-harden and temper. Let it be understood that we are now talking of the extremely delicate forks found in fine Swiss watches. Some may exclaim, What nonsense! to go to all this trouble to bring a notch to fit the pin, when it would be so very simple to finish out the notch and fit a pin large enough for it.

Notwithstanding, the method we propose is probably the shortest cut to best results. Suppose the watch we have in hand is a finely adjusted movement; to fit a pin even .05 mm. larger would make a difference of as many seconds a day in the isochronal adjustment; the effect would perhaps be even greater than this. Therefore, if we work for fine results, we must be careful; a seemingly short cut home is often longer in the end, than a long one. Besides, even considered from the standpoint of mechanical operations only, there may be some question whether or no, to change the pin would be the easier. In fine watches a change of pin usually necessitates grinding out the hole in the roller, the pin usually fitting closely. We will not present this as argument, however; for the reasons previously given, we should never put in a larger pin unless our knowledge of the previous rate of the watch indicates that such change would improve the isochronal adjustment.

In general, a larger pin will cause a loss in the short arcs; and it is hardly

(To Be Continued in Next Issue)

Time—Legislation—and You

You, as the adjusters and servicers of time-recording devices realize, or should realize, the necessity of Legislation to protect our craft from the inroads of incompetency and unethical practices. Many feel legislation is not necessary for them. They say, "I am doing alright, and do not need the cooperation of others." For such a man we are truly sorry. He is to be pitied for he knows not of what he speaks. Self-complicity ofttimes finds a personal loan, and to himself.

Another subject which is called to our attention: "Tools, and why?" Many have asked this question, especially those who don't know how to use tools, how they aid in better workmanship, more speedy workmanship and better satisfied customers, providing the user knows how to use them.

As time progresses, so must the Horologist—the same as the surgeon, lawyer, dentist and all other professional people. In our field progress has been made just the same as in other fields, but for the most part our fellow Horologists have failed to keep abreast with progress.

New tools and methods are being advanced daily. You should apply their use. Study new methods which definitely stamp you as proficient in the eyes of the profession and the public.

Time rapidly approaches when the man in Horology who fails to advance his knowledge in his profession will be left behind and classed as incompetent. The safest way to protect yourself against this stamp of incompetency is to keep abreast of the times, practicing, studying, and learning all there is to know in new and old Horology.

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These two organizations and their membership are to be truly congratulated for the splendid piece of work they have accomplished under conditions, which were most strenuous and required day and night work in order to overcome the opposition which exists in any state insofar as establishing a law of this character.

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Edison Abbott, Vice-Pres.

H. L. Lodde, Managing Director

We cannot speak too highly of Mr. Herman L. Lodde, Managing Director of the Watchmakers' and Jewelers' Associations, who guided this bill and its entire work with the cooperation of the state officers of the Watchmakers' association, which is headed by Mr. Walter Schaefer, State President, and Robert W. Smiley, State Secretary.

At this time we shall not attempt to print the bill, but shall give you a synopsis of the action of same. January 19, 1939 read for the first time and referred to committee on Ways and Means. January 31, 1939 reported favorably. Do pass. February 6th, second reading. Amended (2). Ordered engrossed. February 22nd, third reading. Ayes 58, noes 21. Cast in the Senate. February 24th, read first time in Senate and referred to committee on Finance. February 27th, reported favorably.

March 2nd, second reading amended (2)—enacting clause removed (killed). March 3rd (A.M.) motion to reconsider —enacting clause replaced. March 3rd (P.M.) second reading, amended (2). March 6th, (2:30 P.M.) third reading. Ayes 35, noes 8. March 6th (11:45 P.M.), House concurrence in Senate amendments. March 10th. Governor signed.

This law becomes effective and in full force from and after July 1, 1939; and all watchmakers within the state of Indiana or those entitled to registration as a registered watchmaker or clockmaker should contact the State Secretary at Lafayette, Indiana at once, receiving from him full and complete particulars relative to registration in this state.

In the other states now working on legislation, progress is being reported very favorably; and it is hoped that before the close of many of the legislative bodies that we will be able to report the successful passage and enactment of several additional laws.

Those states whose bills have been presented and are definitely still alive and moving are as follows: Connecticut, Illinois, Iowa, Maine, Michigan, Minnesota, Nebraska, Ohio, Oklahoma, Rhode Island, Colorado. All of these states have duly been presented and are standing a good chance of passing.

To date the following states have lost their bill: Tennessee, Oregon. The state

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Quart Can—85c
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of New York has withdrawn until next session. Massachusetts bill questionable. Pennsylvania will enter this fall. Virginia will enter next year. Several other states are contemplating entering their bill this fall in accordance to the laws governing those particular states.

For complete information relative to these various bills entered and withdrawn either contact the State Secretaries or the National Headquarters. Complete data is compiled for the information of all those states desiring such information.

It is most gratifying to note that throughout the entire United States that these bills being presened are presented in the most part by U. H. A. of A. affiliates; and that the only states successful to date are those who are affiliated with the National Association, receiving every possible benefit and aid in their work along legislative and organization lines.

Congratulations—Indiana

To the Watchmakers Association of Indiana and its loyal, active officers and members goes the credit for making Indiana the second state in the United States to enact Watchmaking Licensing legislation. To all who worked so hard to achieve this success, U. H. A. offers its sincere congratulations.

Indiana joins Wisconsin in leading the watchmakers of America.

Indiana watchmakers join their Wisconsin brothers in a legally attained professional status.

Congratulations Indiana.

B. W. HEALD, *President.*

News Flash

Maine Watchmakers Association reports by wire: "Maine Watchmakers' Bill referred to next legislature.

(Signed) JOSEPH B. CAMPBELL."

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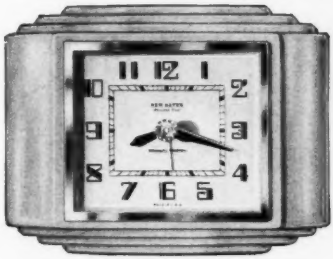

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Pennsylvania

The Horological Association of Pennsylvania has recently made phenomenal growth — in fact, since they definitely established their state association last May — while National Secretary was in Pittsburgh the state association has become Incorporated and have, what we feel, is a model set of By-Laws and Incorporation papers.

George Neisslion, State Pres.

The progress, of course, is not due to any one man, but due credit must be given to their State Secretary, J. P. Sommer; their State President, George Neisslion, and Vice-President Harold O. Erwin.

This state will be host to U. H. A. A. Fifth Annual Convention, and the Pittsburgh Guild, as well as entire state, expects you and your families to be present, to accept their hospitality and prove that Pittsburgh is not the "Smoky City." You will find sunshine galore! The trade, members, and officers radiate enough sunshine to overcome this old fable.

H. O. Erwin, State Vice-Pres. and National Trustee

J. P. Sommer, State Secretary

Front row seated, left to right: Wm. J. Gumbert, Treasurer Convention Committee; Frank D'Elia, Virgil Petrocelly, Treasurer Allegheny County Guild No. 1; George Neisslien, State President; Joseph Beimel, National Technical Board; Peter Strasser.

Back row, left to right: Jules J. Green, John Franz, Carl V. Carlson, Isadore E. Binstock, Legal Advisor and State Director; Cecil E. Bushy, Vice-President Allegheny County Guild No. 1; Stephen Evanuik, Howard O. Erwin, State Vice-President; J. P. Sommer, State and Allegheny County Guild Secretary; Guy B. Woolston, Allegheny County Guild President; August K. Schran.

Now, this convention is being held May 14th to 17th. The 14th will be a State Convention. Yes, their second annual, and what a program! Then, the 15th to 17th, the National Convention—same place, hotel, city, setting—but what a convention it will be! You cannot surmise the surprises in store. These boys are truly doing the job up in unusual style. To miss this—of all events—will be your loss, and what a loss!

After the convention on May 18th a party of delegates are going to the World's Fair in New York in order to enjoy the company and companionship of one another. Why don't you arrange to be with us?

The convention this year shall mark one of the greatest steps forward in Horological Association history. You must be present to hear, see, and feel the Horological pulse, which will throb out its healthful assurance of long and useful life.

The greatest assemblage of Horological minds in the industry will be present. Never before, or ever again, will there be such a gathering of dignitaries in our field. We cannot describe fully the significance of this annual event.

Individuals, be there! Groups, send your delegates. Arrange NOW! Credentials are available. Send for yours, to National Headquarters.

What about Legislation? Pittsburgh will be the place to learn first hand.

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Ohio Watchmakers' Association

The Ohio Watchmakers' Association State Convention will be held at the Sinton Hotel, April 15-16. All watchmakers and jewelers throughout the entire state and adjoining states are invited to participate in the deliberations of this State Convention, at which time National Delegates will be selected to attend the Fifth National Convention of U. H. A. of A., Pittsburgh, Pennsylvania, May 14th to 17th.

Cincinnati Guild

At our last guild meeting a splendid attendance was present to hear a report of Frank Foegler in regard to our State Licensing Bill.

Our guild is increasing rapidly, and at this time have 65 paid-up members for 1939.

RUDDY FLAXMAYER, *Secretary.*

Horological Society of Cleveland

The dinner meeting of February 21st was well attended by a very enthusiastic group of members. The following officers were re-elected for the ensuing year: A. D. Staudt, President; A. C. Witt, Vice-President; E. E. Elgin, Secretary; J. E. Hoog, Treasurer. H. E. Volmar, Jr. was added to the list of officers as Corresponding Secretary.

C. A. Kurtz, E. R. Hager, E. W. Kiel, L. J. Elgin, P. I. Faud, and J. Atchinson were elected Trustees. The election was followed by a very interesting discussion.

On March 8th another dinner meeting with another fine attendance was held. Following the dinner we had our first demonstration of our new projector, showing slides of things of interest, which was enjoyed very much; and we look forward to many more of these interesting meetings.

HARVEY E. VOLMAR, JR.,
Corresponding Secretary.

43rd Meeting of the Columbus, Ohio Watchmakers' Guild

The regular monthly meeting of the Columbus Guild was held March 6th at the Fort Hayes Hotel with Mr. J. W. Finley, President, calling the meeting to order at 8:30 P.M.

Among those present were twenty-three active members, four associate members, and several guests, who were more than welcome.

Prof. E. F. Coddington of the Engineering Dept., Ohio State University, was the guest speaker of the evening, speaking on "Standard Time." He explained the reasons for and the localities of the different time zones. Mr. Heinberger, State Secretary, gave a report on the progress of the State Licensing Bill now before the State Legislature. It was announced that the State Convention would be held in Cincinnati, April 15th and 16th.

Columbus Guild has always been officered by energetic men, backed by loyal supporters. Past and present Presidents are:

J. W. Finley, Present President

D. M. Knox, Past President

Group discussions of trade problems followed the adjournment of the regular meeting.

T. J. FRANCE, *Secretary.*

Dayton Guild

Charter member, Mr. Roscoe C. McCabe, age 58, died Friday, March 3, 1939 at the Miami Valley Hospital. Mr. McCabe has been a member of the State Guild, and National associations since their inception. The records in the na-

tional office show that Mr. McCabe was one of the early members in 1934 at the time U. H. A. of A. was established, and has since that period—up until the present time — been an active and fully paid member. The members of the Dayton Guild, all who knew him, will feel the loss of this quiet friend. In his twenty years at the bench he became very close with the problems of our trade. His willingness to serve, his spirit of cooperation, will always be remembered by his fellow members.

RALPH APPLE, *Secretary.*

Akron, Ohio

The Horological Society of Akron at their business meeting, February 21st, had a very good attendance including two visitors who made application for membership.

Besides the regular routine of business we had considerable discussion relative to the remaining work to be done on our Watchmakers' Licensing Bill.

Messers. Wolfe and Payne of the General Time Instrument Company visited our guild and presented a film on the production of the Westclox family of timepieces.

This entertainment impressed upon us the value of organization in securing such features as this film. The existence of guilds making it practicable for such concerns as Westclox and others to go to the expense of making educational film.

March 22nd our meeting was held in the Y. W. C. A. building. The roll call showed 13 members and 5 visitors present. An application for membership was received from G. P. Heckert of Massillon.

Various suggestions were made as to how we might keep our meetings interesting and entertaining. Mr. H. B. Tracy, Jr., was asked to give an account of his Junior Watchmakers' Examination, which he successfully passed a short time ago.

Much discussion was had relative to the Licensing Bill, as well as other problems peculiar to watchmakers.

During the discussion, President Claude T. Neff, who was comfortably ensconced in a large easy chair and in an effort to secure a still more comfortable position tipped his chair to a precarious position, not taking into consideration the very smooth floor. In an unguarded moment President Neff went to the floor of the house with all bills, rules and by-laws to the great delight of all present.

L. S. MOSER,
Corresponding Sec'y.

Oklahoma Horological Association

At the joint meeting of the Oklahoma Retail Jewelers Association and the Oklahoma Horological Association, Skirvin Hotel, Oklahoma City, April 9th and 10th.

The watchmakers will hold their session of this convention Sunday afternoon, at which meeting they will be addressed by Mr. W. H. Samelius, Chairman of U. H. A. A. Technical Advisory Board, as well as Mr. Sid Prague, of C. & E. Marshall Company.

There will be other features of interest to the watchmaker and store owner.

Oregon

The Master Watchmakers' Association of Oregon held a dinner party at the Chamber of Commerce, March 28, at which time a report on recent Legislative activities filing future work to carry out such, the discussion of the bill, our National Association, Technical subjects were the feature of the evening.

The meeting was well attended.

HAROLD SABRO, *Secretary.*

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The Watch-Craft Tri-Duty tool is equipped completely for Friction Jeweling; all reamers, punches, stumps, etc. are supplied. The tool has an accurate micrometer adjustment so that the jewel can be set at just the proper depth in plate or setting for proper end shake.

The drilling attachment every watchmaker will appreciate. Pivot drilling, holes in plates, removing broken screws, attaching dials, etc. can be done with more accuracy and precision than in a lathe. Twenty-four finest quality Magic pivot drills are supplied with this outfit.

No. 42694. Complete Watch-Craft Tri-Duty Outfit includes 133 punches, 25 special stumps, 24 high grade Magic pivot drills and complete set of reamers, pushers and stumps for Friction Jeweling, in a heavy solid walnut cabinet. Complete with full instructions **$98.50**

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Michigan

Stanley Graver, G. R. Pres.

Grand Rapids Watchmakers' Guild, one of our recent affiliates, are truly doing themselves proud. Since becoming affiliated they are working as a unit with Detroit Guild. Both groups working together on their State Legislation and the creation of additional guilds.

The Michigan Retail Jewelers' Convention will be held April 23rd, 24th and 25th in Grand Rapids, Michigan.

On Sunday, April 23rd, the Grand Rapids Watchmakers' Guild will conduct their meeting in joint session with all watchmakers throughout the state. Contact your nearest secretary regarding same.

Roy Denton, Vice-Pres.

Brayton Lemon, Secretary

Howard Campbell, Treasurer

T. F. Barnes, National Trustee

Let the thought be engraved on your heart, that every moment that flies is irrevocably lost.

St. Paul Watchmakers' Guild

Regular monthly meeting of the Guild was held February 17th, Central Y. M. C. A. During the business meeting there was a discussion relative to a constitutional change in our constitution making it agree with the State Association, of which we are an affiliate.

The speaker of the evening was Mr. Ted Caplin. His subject was that of estimating and taking in watch repairing. His talk proved to be very instructive and helpful to all present.

KARL G. NEID, *Secretary.*

Duluth Master Watchmakers' Guild

The Duluth Guild recently created as a member of the State Association. Complete report is not as yet available. You shall hear more about this guild in current issue of THE AMERICAN HOROLOGIST.

All of those in the district of Duluth should contact Mr. H. W. Schmidt, 325 West Superior Street, Duluth.

Southwestern Minnesota Watchmakers' Guild

This guild has been in operation for some time, and just recently became an associated guild with the Minnesota Master Watchmakers' Association. Officers of the guild are as follows: F. A. Ohlsen, Marshall, Minnesota, President; George R. Lorenz, Secretary- Treasurer. This guild proves to be another of our real live wire organizations and an asset to the state of Minnesota.

GEORGE R. LORENZ, *Secretary.*

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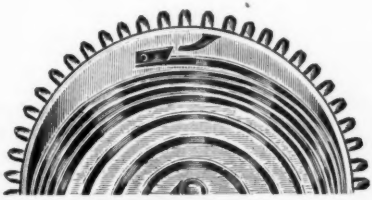

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Iowa

P. Berglund,
State Secretary

Horological Association of Iowa, less than a year old, has proven what a state can do if the trade really wants to better their plight; and through the efforts of Mr. P. Berglund, their first guild was created, later a State Association, and now three guilds and more in the making. The members and officers will not take "no" for an answer. They are destined to be a great state association.

Horological Association of Southeast Iowa

This association was duly organized and officers elected March 1st, as an affiliate of the State association and the National Organization.

Officers elected were: J. J. Pelmulder, President; John Cotton, Vice-President; Oscar Bookin, Secretary, and Hubert Bates, Treasurer.

OSCAR BOOKIN, *Secretary.*

The Northwest Iowa Horological Guild

A dinner meeting of the Northwest Iowa Horological Guild was held March 21, 1939 at the Eilers Hotel, at Fort Dodge.

Several new faces were at this meeting. The following new towns were represented, Webster City, Sac City and Boxholm.

Mr. Don Peterson, a Fort Dodge photographer, showed motion pictures which he took, flying his own plane, on a tour to Miami, Florida. This feature was very interesting as most scenes were in natural color.

Our Educational feature consisted of slides on Broken Watch parts, Oiling, and Bending the Pallet Fork. This led to discussion which created much interest.

Our next meeting will be April 18th at which the study of Hairsprings, and Errors in winding parts which cause slipping, will be the educational topic.

T. O. DILGES, *Secretary.*

Horological Association of Nebraska, Inc.

A joint convention of the Nebraska Retail Jewelers Association and the Horological Association of Nebraska was held in Omaha at the Fontenelle Hotel April 2nd and 3rd. This convention was well attended, and many prominent speakers were heard. Enthusiasm ran high, and cooperation of both branches of the industry was evidenced in behalf of the watchmakers' legislative endeavor. Such cooperation between both branches of the industry is one of the surest methods by which the industry as a whole can better its present condition.

MORRIS YOST, *Secretary.*

Nebraska

Lincoln Guild: This guild has been a true asset to the state, and they wish to announce their first president, Mr. Paul H. Powell, has resigned his office

Paul H. Powell,
Past President of
Lincoln Guild

due to securing a fine position in La Crosse, Wisconsin. We regret his leaving, and know Wisconsin has gained a splendid member.

A man discharging his duties under trying circumstances is worthy of our confidence.

Mohawk Valley Watchmakers' Guild

The regular meeting of Mohawk Valley Watchmakers' Guild, U.H.A., National Affiliate No. 34, was held March 14 at the Hotel Martin. Twenty-one members were present as the chicken was served.

1939 officers are as follows: President, Clarence Engelbert of Rome; Vice-President, Lee W. Rose of Ilion; Secretary-Treasurer, Leo A. Bevins of Utica.

At the opening of the meeting, Mr. Robert Johnson, president of the Student Watchmakers' Guild, extended an invitation for this guild to join a combined meeting with Syracuse guild at Morrisville May 2nd. This invitation was accepted and a large joint meeting is expected.

Following the business session the meeting was turned over to Prof. George Schlehr, instructor at Morrisville and who is also a member of the Technical Advisory Board of the U.H.A. Mr. Schlehr gave a very enlightening talk on the construction of the train.

The next meeting will be held sometime during the first of April, the speaker to be announced later. R. G. TAYLOR.

Albany, New York

Albany District Guild has made remarkable progres since being organized by National Secretary last May. The Guild is supported by men of sterling worth and officered by officers who know what their members expect, and give freely of their talents.

John De Vogel, President

William Harnau, Secretary

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New York State Student Guild No. 1

Top, left to right: N. Miller, C. Russell, R. Woodford, S. Mitchell, K. Sheldon, H. Campbell, G. Schlehr, Jr.
Center: E. Harland, J. Beyor, E. Calvert, C. Johnson, K. Dousch, E. Carter.
Bottom: L. Robinson, R. Johnson, Professor Schlehr, O. Mester, V. Lomax.

Wisconsin

R. R. Meisner, State Pres.

Is this week starting a membership drive. The results we have sent to the National Office so far as just unofficial dabblings.

Since the first of the year the Milwaukee Guild has increased materially. In fact, in the entire state of Wisconsin membership has increased far more than any other organization to our knowledge.

B. W. HEALD, *Secretary.*

R. Lees Avery, Vice-Pres.

B. W. Heald, State, Secy.

A. D. Muschinik, State Treas.

Fred Gilomen, National Trustee

Milwaukee Guild

Regular monthly meeting — Tuesday, March 28th at 8:00 P. M. at Hotel Pfister.

Speakers: Mr. Edwin E. Olson, Gemologist, Milwaukee. Subject — "Gemology." Mr. T. L. Roswell, State Board of Vocational and Adult Education, Madison. Subject—"Tentative Educational Plans for Watchmaking Craft."

Question Box: This is your opportunity to present your problems and receive the benefit of the opinions and experiences of others. Send your questions to the Material Supply Houses and they will be presented at the meeting.

The meeting started promptly at 8:00 P. M. and was open to members and their guests only.

If you are not a member, application for membership may be made at meetings.

You can not afford to miss these interesting and instructive meetings.

JOSEPH P. SOLTIS, *Secretary.*

Western Wisconsin District Guild

Held its regular monthly meeting in the Association of Commerce rooms, Hotel Stoddard, La Crosse, Wisconsin, on March 21st. While still young, this Guild has enjoyed a phenominal growth. Credit is due to Mr. Ralph Young, President, and his loyal co-workers.

A constitution and by-laws was adopted, and the following were elected by unanimous ballot as officers for the ensuing year: Ralph H. Young, La Crosse, President; Arthur W. Lee, Sparta, Vice-President; Harold Haas, La Crosse, Secretary-Treasurer.

Urie Addresses Milwaukee Watchmakers

Professor Frank D. Urie, Chairman of U. H. A. Astronomical Board, Superintendent of Research and Inspection of Elgin National Watch Company, addressed nearly one hundred watchmakers at a meeting held February 28th at Hotel Pfister, Milwaukee, Wisconsin. Prof. Urie, who was accompanied by Ed. Bergstren, District Representative, and Mr. E. Reed, of the Department of Research and Inspection, presented a new lecture, "New Eyes for the Watchmaker." Large attendance and interesting programs are now the accepted thing at all meetings of the Milwaukee District Guild of the Wisconsin Watchmakers Association.

Central Kansas Watchmakers' Guild No. 1

There was held in Salina, Kansas, March 23, 1939, the first meeting of watchmakers in that state, at the City Hall where the first District Guild was organized.

This group has tendered their affiliation papers to U. H. A. of A. and shall be a unit of The United Horological Association of America.

Mr. Frank Moore of Salina was elected as president. Other officers are: W. H. Widiger, McPherson, Kansas, as Vice-President; W. A. Nelson, Salina, Kansas as Secretary; Malcolm Ross, Salina, Kansas as Treasurer.

The organization meeting drew an attendance from McPherson, Lindsborg, Concordia, Lyons, and Salina.

The purpose of the new guild is to raise the professional standards among watchmakers and promote state legislation. Work along this line has been going on for many months, and at the present time three other sections of Kansas are forming guilds.

It is expected that prior to the national convention in Pittsburgh, state affiliation papers will be in the hands of the National Office.

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Horological Institute of America

At a meeting of the Examining Board held in Washington, D. C., on March 11, 1939, certificates were granted to the following watchmakers.

Certified Watchmaker

Name	Address	Employed by
Frank Babb,	Dallas, Texas	Ben Morris Jewelry Co.
Harlen Day,	Emporia, Kansas	Hughes Todd Jewelry Co.
Max Gleicer,	Philadelphia, Pa.	
Fred Koehler,	Lancaster, Pa.	Hamilton Watch Co.
Arthur B. Sinkler,	Lancaster, Pa.	Hamilton Watch Co.
Walter R. TenBrook,	Albany, Oregon	
Kenneth L. Whelchel,	Indianapolis, Ind.	Rogers & Co.
Herbert W. Kauffmann,	Ashland, Ky.	A. B. Polan

Junior Watchmaker

Chris. Boxleitner,	Elgin, Ill.	Student at Elgin College
John W. Buskala,	Peoria, Ill.	Student at Bradley Inst.
W. M. Edwards,	Peoria, Ill.	Student at Elgin College
Robert Flynt,	Elgin, Ill.	Student at Elgin College
Barney Long,	Elgin, Ill.	Student at Elgin College
Frank Rodholm, Jr.,	Elgin, Ill.	Student at Elgin College
George J. Schlehr, Jr.,	Morrisville, N. Y.	Student at N. Y. State School of Agriculture

Repaired watches for the next meeting of the Board should be in for test not later than April 12, 1939.

Remember the Annual Meeting, May 21-23, 1939, in Washington, D. C.

R. E. GOULD, *Secretary.*

Hartford Watchmakers' Guild

Held their regular meeting in the Chamber of Commerce Building March 8th. The meeting was well attended with President Carlson officiating.

The guild has been exceedingly active of late in their legislative work; and it was called to their attention that having been so busy they had materially neglected their educational features. Upon motions, which were duly passed, the following Educational Committee was appointed, consisting of the following: Mr. Thompson, Chairman; Mr. Linden, and Mr. Jones, for one year.

N. W. LINDEN, *Recording Secretary.*

Massachusetts Legislation

Special report of Massachusett's bill has just reached the National office, of the disposition of their bill. "Committee on State Administration had reported 'Leave to withdraw' on our Bill No. 1559, also that it was presented to the House at which time the representatives voted to accept the report of the Committee. This means that the bill is dead insofar as this Session of the Legislature is concerned. We are going ahead with all work at the next regular session."

A New Use for Watch Material Catalog

BY J. HESS

I had a real watchmaker come to my place the other day, one of those kind who carry all the tools they own in a cigar box. He stated: "Save me one of those old material catalogs." He said: "I'll bet you don't know what I do with them. I cut out the dials and paste them on the old dials of watches." He laughed a big smile. "That's pretty good, ain't it?" "It's pretty good, alright," I thought. I believe this to be good enough to pass on to other Horologists in our field and to perhaps show the unethical practices going on throughout the United States. If this is happening in Illinois, surely it must be happening in other states and conclusively gives us additional proof and reason for supporting those organizations and states endeavoring to pass legislation in the best interest of our professsion and the jewelry industry.

THE AMERICAN HOROLOGIST is made possible through the advertisers appearing in this publication. Through your patronage *you* can show your appreciation.

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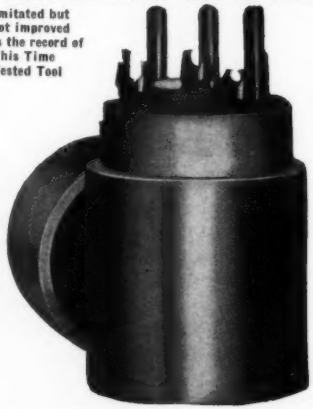
REX ROLLER REMOVER

Imitated but not improved is the record of This Time Tested Tool



A-5	As illustrated, for all but the smallest sizes	$3.50
A-5½	Handles, any make or size	4.25
A-6	Pocket sizes	1.75
A-7	Bracelet sizes	1.75
A-9	Baguettes	1.75

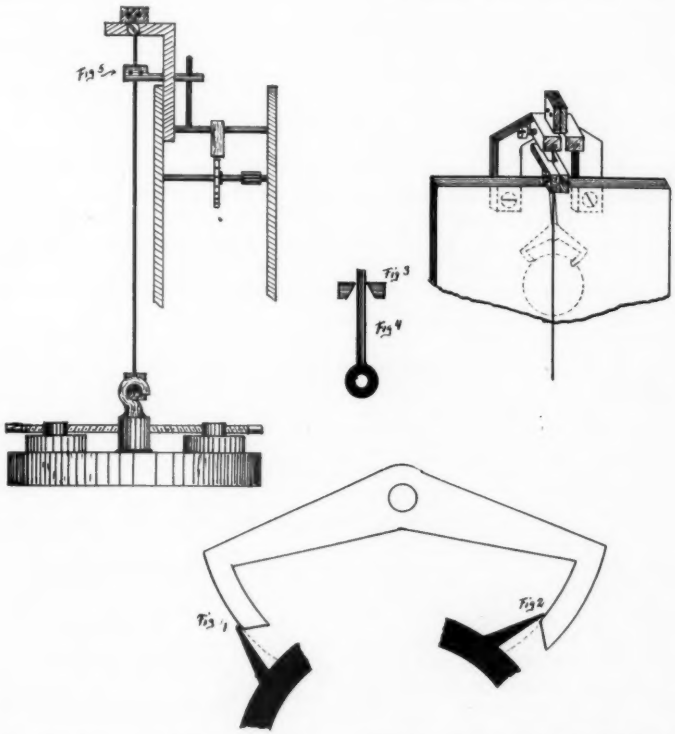
Unconditionally Guaranteed
For sale at your jobbers
H. G. WILSON ELGIN, ILL.

The Anniversary or 400-Day Clock

By W. H. SAMELIUS

MANY of these clocks are brought to the shop for repairs and as the average repair man does not take too kindly to these clocks, a few suggestions for repairing them would not go amiss.

We must first see that the pivots for the entire train are well polished and that the pivot holes, if showing any wear at all, must be bushed and the holes burnished smooth with a round burnisher.



The lifting planes of the pallet are to be nicely polished as well as the locking surfaces. When polishing the locking surfaces, care must be taken so as to maintain this surface concentric with the pallet center. It is a dead beat movement, so if the shape of the locking planes are altered, the escape wheel will not come to rest and remain at rest on the locking plane. It might either show a recoil which would have a tendency to unlock the escapement or the escapement may have a heavy unlocking, which would retard the free action of the escapement. In either case you cannot get good results from the clock if either of these conditions exist.

We must also examine the escape wheel for truth in the round and for any bent or short teeth. The point of the tooth must come to rest on the locking plane of the pallet. See Figures 1 and 2. If the front of the tooth lies flat on the locking plane, it will cause too much

friction and oil adhesion and the escapement will be sluggish. The tooth must be undercut as per Figures 1 and 2 and the face of the tooth well burnished.

The escapement must be set to show a safe drop lock, a trifle deeper than the regular dead-beat escapement. We then examine the impulse pin (Fig. 4). This pin must be well polished or burnished where contact takes place in the impulse lever. We must also see that the knife edges of the impulse lever are smooth and that the under side is well relieved to give ample freedom to the impulse pin while rocking back and forth. See Figure 3.

Adjustment to regulate the drops of the escapement can be made by means of an eccentric bushing fastened to the back plate and carrying the pallet pivot.

We now come to the positioning of the impulse lever (Fig. 5), which is fastened to the suspension spring. There is a definite place for it that must be found by trial. If placed too high on the suspension spring, the escapement will not have sufficient power to throw the lever from right to left and if the impulse lever is lowered too much, the escapement will have a tendency to run wild, either stopping or show a gaining rate. However, one or two trials will show us the proper position for the impulse lever.

By forwarding the impulse pin deeper into the lever slot will increase the angular motion of the lever, giving greater twist to the suspension spring, increasing the arc of the pendulum.

When setting the escapement in beat, see that the slide on both pallets are equal. This adjustment can easily be made by turning the support that holds the upper end of the suspension spring, sometimes called at beat block (Fig. 6). A slight turn of this beat block is very effective and care must be taken not to turn the block too much. Beat blocks are held in place with a lock screw (Fig. 7). In some makes of anniversary clocks the beat block is merely fitted friction tight to the bracket and does not have a locking screw. These models are more convenient for adjusting.

We often have to supply a new suspension spring. When so, a spring of the proper strength must be selected, the same as we would select a hairspring for the watch balance. The pendulum in the anniversary clock vibrates 16 times per minute or eight double vibrations of 7½ seconds each. Suspension springs for these clocks can be had in various strengths from .003 to .006-inch thick and the regulation is made by turning the regulator screw which carries two weights at an equal distance from center. This regulator screw has a right and left hand thread so the weights move in unison. By moving the weights toward the center will make the clock run faster and by moving the weights away from the center will make the clock run slower.

If you cannot control timing the pendulum by means of the regulator, remove the cover plate from under side of the pendulum when weights may be taken out or additional weights added. Timing washers are easily made from sheet lead secured from your local hardware store.

It is very important when cleaning clocks of this kind that the mainspring be removed, thoroughly cleaned and lubricated with a very light grease or heavy oil.

U. H. A. A. National Convention

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MAY 14-15-16-17

PITTSBURGH, PENN.

The Entire Trade Invited.

• •

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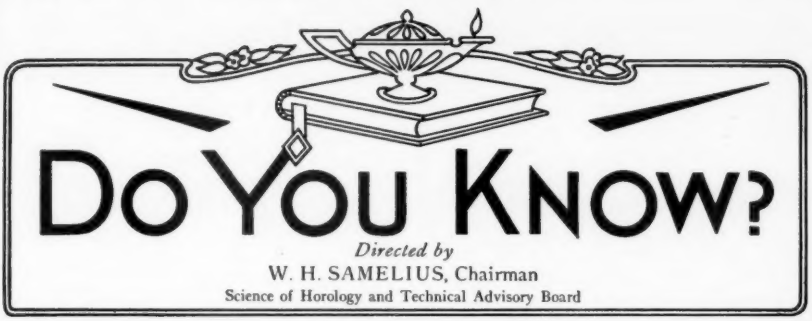


4 FLEA-POWER OF A WATCH

It Moves the Balance Wheel Over 3,500 Miles a Year

Few pieces of machinery show more wonderful features than that of a watch. As a general proposition it may be stated that a watch is the smallest, most delicate instrument of the same number of parts that has ever been devised.

About 175 different pieces of material enter into the construction, and upward of 2,000 separate operations are comprised in its manufacture. Certain facts connected with its performance are almost incredible when considered as a whole.

The roller jewel of a watch makes every day—and day after day—432,000 impacts against the fork, or 157,680,000 blows during the course of a year without stop or rest—or some 3,153,600,000 blows during the space of twenty years, the period for which a watch is usually guaranteed to keep good time.

It has been calculated that the power that moves the watch is equivalent to only four times the force used in a flea's jump. The watch power is, therefore, what might be termed the equivalent of a four flea-power. One-horse power would suffice to operate 270,000,000 watches.

Furthermore the balance wheel of a watch is moved by this four flea-power 1.43 inches with each vibration, or 3,558¾ miles continuously in one year. It takes only one-tenth of a drop of oil to oil the entire machinery for a year's service.

We often hear of how small and delicate some of our watch parts are made. It is interesting to note that in England, pins are manufactured in many sizes from 3½ inches long to pins so small that 4,500 are required to weigh one ounce. These pins are used by entomologists.

Many of our early American clock cases were ornamented with a thermometer, barometer and a spirit level to show when the clock was standing level. Some of the clock cases were equipped with leveling screws.

Many of our early Swiss watches were equipped with solid gold hands and decorated with small rose diamonds.

During the early days when the art of making steel mainsprings was not wholly a success, some of our clock manufacturers used a hardened brass ribbon for mainsprings.

A tablespoon of gold dust (washing powder) dissolved in a pint of boiling water, when cooled add ¼ pint of ammonia, makes a very handy jewelry wash or solution for cleaning clocks.

A carrillion of 44 bells, their combined weight being 18 tons, is to be installed in the 400 foot tower of the Sun at the Golden Gate International Exposition. These bells may be played by remote control from a key board at the organ or by an automatic player, using music rolls. These bells were cast by the famous bell founders, Gillet & Johnson of Croydon, England.

The French watches made in the early part of the 17th Century required winding each 12 to 14 hours. These watches employed the verge escapement and a Fusee.

Is Less Skill, or More, Required?

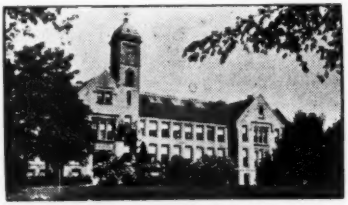
By D. L. THOMPSON

WE HEAR the statement, made by some employers and others who have had little training in horology, that the modern watchmaker does not need to have the skill that was required of the workmen in the days of hand-made watch parts for the reason that the modern machine method of making watches turns out parts that are uniform and interchangeable with parts of any other watch of their particular model.

We will grant that the latter part of that statement is true, but with certain reservations. Modern machine parts are practically uniform and are interchangeable and can be fitted with little or no changes in many cases, this applying to parts of the train, jeweling, and the escapement. But when we come to the balance and hairspring we have arrived at the parts where skill, and skill alone, is the answer whether we have a timekeeper or just a watch. The most perfect parts that can be made are valueless here unless the workman has the knowledge and mechanical skill required for their proper installation and adjustment in order to return the watch to its original condition and usefulness. This applies to those watches of the higher grades. No watchmaker lets his conscience bother him very much when working on the low-grade junk that comes in for repairs. He must make them tick and keep some sort of time, turn them out quickly, do little and charge little. This is the kind of work that inspires the statement made at the heading of this article and is one of the reasons for the low estate in which the watchmaker finds himself today. The chances are that he had a hand in their sale in the first place.

Let us consider the skill of the watch-

"The Pathway to Success"



WATCHWORK
JEWELRY
STONE SETTING
ENGRAVING

Bradley Polytechnic Institute
School of Horology

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Established 1886

FULCRUM OILS

ABSOLUTELY THE HIGHEST GRADE LUBRICANTS
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The War Department recognized this when they selected Fulcrum Oils for use on their delicate and intricate instrument and mechanisms.

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Fulcrum Oil Co. Franklin, Pa.

makers of the era of hand-made parts. In those days the trade of watchmaking was divided into a number of separate trades. There were the plate and train makers, pallet makers, jewel setters, balance makers, main and hairspring makers, and, finally, the springers and adjusters. (This method of manufacture is still practiced to a considerable extent in Switzerland at this late day.) Each of these divisions of the trade was a highly skilled art and the apprenticeship to cover all of them took a long time and there were relatively few men who mastered them all. The repairing of a watch in those days may be compared to that work today in that parts that the watchmaker himself could not make he secured from a master of that particular branch of the trade by sending the watch to him. As before stated, many of the men engaged in the watch repair business of that era were masters of horology but the vast majority were masters of some particular branch, or branches, of the trade with only a smattering knowledge of the art of horology in general. These were the days when time was reckoned in minutes and life was leisurely—seconds were of little importance in the affairs of men.

With the coming of machine made watches the watchmaker was compelled to become more skilled as he had to learn to fit the parts, which were only partially interchangeable, until he broadened the scope of his work to include even that of adjusting.

So today we find that the watchmaker, who is worthy of the name, must be more skilled than his predecessors as the various divisions of the trade have been incorporated into the watch factory which has gradually reduced the size of movements to four lignes, and less, and has standardized on the lever escapement. The small size of movements has increased the skill required for their satisfactory repairing, and, though the use of soft mono-metallic balances and soft nickel-steel, and elinvar, hairsprings has reduced the skill needed in compensating for temperature, it has increased the necessity for a delicate touch in replacing the balance staff and adjusting the hairspring.

Practically all of the operations of making a watch have been reduced to an exact science, using automatic machines which are almost human in their operations and turning out parts that are duplicates in their measurements to within thousandths of an inch and many thousands possibly in a day. Yet, these machines were made by men and the dies, jigs, and their adjustments must be checked frequently against fixed standards, the human element remaining just as important as ever. The watches must be put together, the adjustments checked, and the timing done by human hands and eyes.

Watches of high grade are not slapped together, cased and rushed into the hands of retailers. Some factories take a year in making a watch. The parts, to be sure, are turned out in vast quantities, and quickly, but the assembling, adjusting, and timing are leisurely done in order to produce a timekeeper worthy of its name.

Handwork has not been done away with but, on the contrary, the need for skill of hand and eye is of increasing importance. Many tools have been developed to make the manufacture of watch parts easier, cheaper, and more exact. Timing machines reduce the time required in rating a watch, but the mind of man alone knows what to do to make an inanimate machine do what is required of it and skilled hands are needed to accomplish the result desired.

We have arrived at the age of reckoning time in seconds and any man who can fit a new balance staff, or hairspring, in a high-grade watch and adjust it to keep time to within a few seconds a day is a highly skilled artisan and worthy of his hire. No machine can replace the horologist.

Pope Pius XI possesses the costliest watch in the world. It is a jeweled timepiece said to be worth $300,000.

The Calendar

By ROBERT J. HILL

The Systematic Division of the Year Into Months, Weeks and Days

THE JEWISH CALENDAR—Dates from 3671 B. C. (date of creation according to legend) used by the Hebrews. Each Lunar Cycle of 19 years is based on the movements of the sun and moon. A defective year had 353 days, the regular year 354 days, and the abundant year 355 days. Another month was inserted in what we now call leap year which occurred in each lunar cycle in the 3rd, 6th, 11th, 14th, 17th, 19th years. The Jewish year 5696 began September 28, 1935.

THE EGYPTIAN CALENDAR — The earliest fixed date in history by the planning and invention of the Calendar in 4241 B. C. How long the Egyptian Empire existed before this is unknown. This Calendar was based on the astronomical observations. It was a year of 365½ days, 12 months of 30 days each month divided into ten-day periods.

THE JULIAN CALENDAR — The Egyptian Calendar was introduced into the Roman Empire by Julius Caesar 46 B. C. and was known as the Julian Calendar. The extra five days in Egypt were holidays, but Julius added one day each to January, March, May, July, September and November making each 31 days. The sixth day was taken from February leaving it 28 days. In 28 B. C. the Calendar was modified under Augustus who gave August 31 days, transferred September's extra day to October and November's extra day to December. The extra one-fourth day was added every fourth year and became known as Leap Year. In 1582 A. D., Pope Gregory XIII modified this Calendar and it was adopted almost universally and became known as the

THE GREGORIAN CALENDAR—The true solar year contained 365¼ days so that by 1582 the calendar was ten days ahead of the solar year so Pope Gregory proclaimed October 5th should become October 15th, thus correcting the calendar. In order to prevent a recurrence of this error in the future the Pope further ordained that every centesimal year 1600, 1700, 1800, etc., should be leap year only when divisible by 400. Other leap years should be those divisible by 4. This calendar was adopted by England in 1752, by Japan 1873, by China 1812, by Turkey 1917, by Russia 1918, by Roumania 1919, and by Greece 1923.

THE CHINESE CALENDAR — Was on a basis of twelve months of 29 or 30 days, with another month added in every thirty. The Chinese era dated from 2697 B. C.

CALENDAR REFORM — Advocates of calendar reform have been thinking and planning with a view to having a new calendar with every year and every month the same and each month beginning on Sunday. This was designed and executed by a group headed by Mr. Charles Eastman of the Eastman Kodak Co. They planned a year of 13 months of 28 days each. Each month to begin on Sunday so that every month and every year would be exactly the same. Many business houses have adopted this calendar for their own fiscal use.

THE NEW WORLD CALENDAR—Th World Calendar Association, Elisabeth Achelis, President, was organized in October, 1930, for the purpose of educating the public to the defects of the present calendar and the benefits that a revised calendar would bring to the world. This calendar retained the 12 months but divided the year into four equal quarters of three months each. Each quarter begins on Sunday and ends on Saturday. With a Year-end Day after December 30th each year and a Leap Year Day after June 30th, every four years to stabilize the Calendar Year with the Lunar Year.

The stabilization of the year had been proposed by Abbe Mastrofini as early as

1834 and had received authoritative, scientific and astronomical approval at various later dates. Today fourteen nations are ready to adopt it.

The World Calendar Association is confidently looking forward to December 31, 1944, when the Gregorian and the New World Calendar meet on the same day and make possible a smooth and easy change.

The New World Calendar is the same each year. It bears no date and so is universal. The quarters are equal in length. Each quarter contains 3 months, 13 weeks, 91 days, begins on Sunday and ends on Saturday. Each year begins on Sunday. This revised calendar is balanced in structure, perpetual in form, and harmonious in arrangement. Soon you will be using this up-to-date calendar.

NEW WORLD CALENDAR

FIRST QUARTER

JAN	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
FEB				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		
MAR						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30

SECOND QUARTER

APR	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
MAY				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		
JUN						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30 ⊙

⊙ Extra Saturday after June 30th in Leap Years.

THIRD QUARTER

JUL	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
AUG				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		
SEP						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30

FOURTH QUARTER

OCT	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31				
NOV				1	2	3	4
	5	6	7	8	9	10	11
	12	13	14	15	16	17	18
	19	20	21	22	23	24	25
	26	27	28	29	30		
DEC						1	2
	3	4	5	6	7	8	9
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30
							□

□ Extra Saturday after December 30th every year.

New Cylindrical Plug Gauge

The Grobet File Corp. of America, which last year introduced its line of high speed steel flat drills for the piercing of small holes, announces its new line of Cylindrical Plug Gauges for the checking of such holes. Illustration below shows actual size of one of these gauges.

Gauges are available immediately in the diameters from .010″ to .084″ in every .001″. However, they can also be obtained, on special order, every .0005″ or .00025″ or .0001″, from .004″ to .150″, or in the metric system every 1/4/100 m/m from 0,25 m/m to 4,00 m/m.

Double end gauges, to check tolerances, can also be made to order.

The plugs, which are made of high carbon tool steel, are hardened, ground

and precision lapped. The guaranteed accuracy is plus or minus .000025" (.0006 m/m). The plugs are held in a hollow hardened steel holder by a collet. They can easily be removed, reversed or replaced. All handles are marked with the diameter of the gauge. Ask for pamphlet P-24.

FIFTH NATIONAL CONVENTION

PITTSBURGH, PA.

Roosevelt Hotel

May 14-15-16-17, 1939

One of the Most Outstanding Conventions of the Year. All Invited—Entertainment, Educational Programs, Etc.

News Item

Prominent among the new Spring items now being offered by The New Haven Clock Co., New Haven, Conn., is the

"IDEAL, JR." ALARM.

Ivory - colored metal case, polished brass bezel. White metal dial with square numerals and polished brass hands. Unbreakable crystal. Top shut-off. Temperature - compensated movement. One key in the back winds both time and alarm. Width, 4 inches; height, 2⅞ inches. Retail price, $2.50.

Cathedral of Learning

This unique building is the center of the University of Pittsburgh activities. It is a structure that "expresses, through the characteristic qualities of its architecture, the spirit or purpose of all that should go on within a university." The name was suggested partly by its Gothic architecture, and partly by the idea that it is "a seat or central symbol of creativeness and of achievement in the Pittsburgh district."

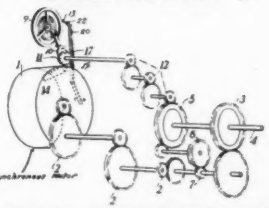
This is the tallest schoolhouse in the world. It rises to the height of 41 stories or 535 feet. The topmost roof deck is 1423 feet above sea level.

Patent and Trade-Mark Department

The following memorandum relating to patents and trade-marks is made available through an arrangement had with JAMES ATKINS, registered patent attorney, Munsey Building, Washington, D. C. The trade-marks were recently published by the United States Patent Office and, if no opposition thereto is filed within thirty days from the publication date, the marks will be registered.

We have also arranged with with Mr. Atkins to furnish our subscribers with preliminary information respecting their patent and trade-mark matters, the same to be without charge to them. Address your inquiries to Mr. Atkins, advising him you are a reader of this paper, and a prompt report will be sent you.

2,146,499
ELECTRIC CLOCK MOVEMENT
Frederick Roy Butherus, Enfield, England, assignor to Sangamo Electric Company, Springfield, Ill.
Application August 14, 1936, Serial No. 96,011
In Great Britain January 16, 1936
1 Claim. (Cl. 58—26)



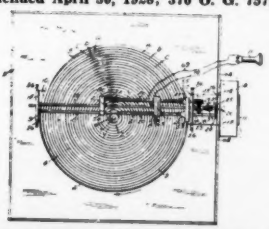
In a clock disposed to be driven by an electric motor and on deenergization thereof by a spring motor, in combination, balance means including a balance wheel for controlling the functioning of said spring motor, a pin projecting radially from said balance wheel, an arm pivoted about an axis substantially parallel to the axis of rotation of said balance wheel and in substantially the same plane as said balance wheel, an armature extending from said arm and disposed to move the same under the influence of the magnetic field of said motor, and a blade spring member secured to one end of said arm and extending therealong and having its outer end curved and positioned in the path of said pin at a position substantially spaced from its mid-position on energization of said motor, said curved outer end portion of said blade spring being positioned along the side of said arm away from said balance wheel so as to permit said pin to pass the same when it is moving toward said position and away from said mid-position and to prevent movement thereof in the opposite direction, whereby said balance wheel is always stopped in a position of relatively high potential energy on energization of said motor.

2,146,329
CAP JEWEL BEARING FOR CLOCKWORK MECHANISM
Henri Colomb, Lausanne, Switzerland
Application April 10, 1936, Serial No. 73,765
In Switzerland January 9, 1936
9 Claims. (Cl. 58—140)

1. In a timepiece movement, the combination with a frame member, said frame member having a recess provided at its bottom with a central aperture, of a spindle having its end extending through said aperture, a removable pivot bearing loosely carried in said recess, said bearing including a perforated bearing member and a cap bearing member, said recess in the frame member and said bearing having coacting surfaces for seating the bearing in the recess, one at least of said surfaces being conical, a resilient member yieldingly urging said removable bearing in contact with said surface of the recess in the frame member

and tending to center the bearing in the recess, coacting abutting portions on said spindle end and on said frame member for limiting lateral displacements of the spindle, and coacting transversely extending shoulders on said frame member in said recess and on said bearing in close relationship with each other whereby upon a lateral displacement of the spindle and a rocking movement of said bearing, said shoulders make contact with each other before said abutting portions on the spindle and on the frame member meet each other.

2,144,625
PHONOGRAPHIC TIME ANNOUNCER
Dean A. Herman, Fort Sill, Okla.
Application March 31, 1938, Serial No. 199,299
10 Claims. (Cl. 179—6)
(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)



1. In a phonograph announcer having a record thereon; a reproducer transmitter including a needle guided to move on the record; driving means to feed the reproducer transmitter toward the center of the record; lifting means on the central portion of the record to raise the needle and reproducer transmitter; and means including a friction device adapted to be driven by the record for returning the reproducer transmitter to its starting position, after the reproducer transmitter is raised.

Elgin Opens Spring Season With 19 New Watches For Men

Watch Company announces new models in wide range of prices and styles, highlighted by 51-jewel Elgin "Lancers" at $29.75.

In response to growing demand for a moderately priced 15-jewel watch for men, the Elgin National Watch Company has just announced the appearance of seven new 15-jewel Elgin "Lancers", to sell for $29.75. Twelve other important additions to the line, including three new 21-jewel Lord Elgins, are now ready for distribution.

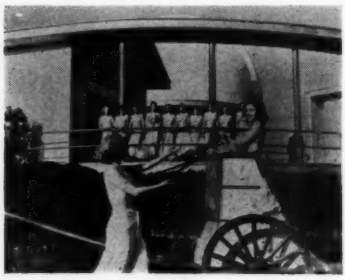
Four of the "Lancers" are 8/0 size; three are 18/0 size. The Lord Elgins are 8/0 size.

The other new models include two new "Crusaders," one of which is a flexible lug model, advertised nationally as the Elgin "Flexon." Both of these watches are 8/0 size, contain 17 jewels, and sell for $37.50.

Elgin is also offering new styles in 8/0, 7-jewel "Cavaliers" and 17-jewel "Streamlines." The new models will be strongly promoted in Elgin's national advertising throughout the spring.

Spring Welcomed to World's Fair

New York — Ceremonies dedicating the Elgin Watch Observatory at the New York World's Fair were enlivened by the official welcome of Spring—even though the mercury hovered around 24 degrees above zero. The legend of Ceres and Persephone was enacted when Persephone arrived in traditional chariot drawn by black horses at 7:28:30 a. m. Exact time of Spring's arrival was announced by Prof. Frank D. Urie, director of research for the Elgin Company, as shown on the astronomical clock in the Observatory. Above, Carol Murphy, as Ceres, the Goddess of Earth, is welcoming Persephone (Kathleen McLean) to the Fair. In the background are young ladies who did a dance of Spring in honor of Persephone.



Elgin Brings Spring to New York's World's Fair

At 7:29 A.M., March 21, at the exact moment when Spring entered the year, the building of the Elgin National Watch Company at the New York World's Fair was dedicated with appropriate ceremonies.

In the observatory building equipped with precision instruments for telling time exact by the stars, actual observation of the heavens through a telescope checked a master clock which provided the time dedication activities accurate to eight-thousandths of a second.

Designed by W. L. Pereira, Chicago architect, the building presents a circular design with the observatory dome in the center and strikingly emphasizes the meridian, or North and South line.

When the exhibition hall surrounding the observatory is complete, a series of exhibits will depict the history of timekeeping. Prominent among them will be a mural painting, 110 feet long, a connected series showing the increasing importance of Time. Other features will include replicas of ancient time-determining devices, beginning with those used in prehistoric times, continuing down through the ages to antique and modern watches, and ending with a glimpse of the "Time Piece of Tomorrow."

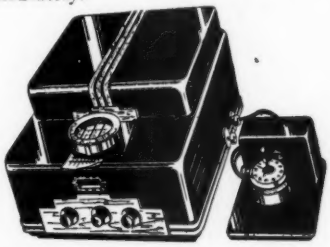
Here the visitor may have his watch checked by means of a watch-testing machine which, in 15 seconds, shows the

amount of the watch's deviation of 24 hours. Some of the interesting technical phases of watch manufacture will be featured in an exhibit showing scientific achievements of the Elgin factory.

Introducing "Time-O-Graf" to the Industry

Watchmaking history is once again being made by the C. & E. Marshall Co., who now introduce the Time-O-Graf,—definitely the "last word" in watch timers. This new precision instrument actually gives you a 24 hour 5 position rating in one minute; at the same time diagnosing scientifically the mechanical errors in a watch.

When a watch has been repaired it is easy to check on the Time-O-Graf whether it is in perfect mechanical order, and if not, it locates the trouble spot immediately.



Time-O-Graf is accurate, quick, and simple to operate. The watch to be timed is placed in the microphone, which automatically records the watch beats and prints them on a moving graphic tape. To get a complete action record of the watch in all positions, this microphone is simply revolved. As the tape is printed it passes under a calibrated dial from which the gain or loss may be read instantly. The same graf also reveals and identifies defects in the balance, escape wheel, fork, and other escapement parts.

Time-O-Graf is definitely an asset to any jewelry and repair shop. It not only makes work easier for the watchmaker and assures him that the repair jobs he turns out are absolutely satisfactory, but gives him positive assurance new watches to be sold are accurate timepieces.

C. & E. Marshall Co. submits Time-O-Graf to the industry in the hope that it will help watchmakers and jewelers everywhere to minimize their work and speed up their service.

Full details may be obtained through C. & E. Marshall Co., sole distributors of the Time-O-Graf.

A New Watch Cleaning Solution Announced by the L & R Co.

L & R Manufacturing Company of Newark, New Jersey, announces the marketing of a new and exclusive watch cleaning solution under the name of L & R "Nofome" No. 1. This perfectly proportioned cleaning agent has been developed after months of research in L & R's own laboratories. All watchmakers who have used it are enthused over the perfect results obtained.

In addition to the unusual brilliancy which is given to all of the watch parts, the non-foaming action of the solution enables the operator to run the machine faster in the cleaner and still have ample space to throw off the surplus, thereby keeping the rinsing jars freer of the cleaning solutions and helps make the rinses longer lasting. "Nofome" is particularly made for the new reverse action machines which are finding favor with watchmakers everywhere.

Mr. Max A. Lazarus, president of the L & R Manufacturing Company is now making an extended trip throughout the country. His plans call for visiting jobbers in principal cities of 23 states, where he is introducing the new "Nofome" cleaning solution and other L & R watch cleaning machine improvements.

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